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(19) **United States**(12) **Patent Application Publication**
Dorval(10) **Pub. No.: US 2009/0051558 A1**(43) **Pub. Date: Feb. 26, 2009**(54) **METHOD AND APPARATUS FOR
PROVIDING OPTICAL INDICATIONS ABOUT
A STATE OF A CIRCUIT**(52) **U.S. Cl. 340/653; 340/815.45**(57) **ABSTRACT**(75) **Inventor: Jay H. Dorval, Lucas, TX (US)**

Correspondence Address:

**HAMILTON, BROOK, SMITH & REYNOLDS,
P.C.****530 VIRGINIA ROAD, P.O. BOX 9133
CONCORD, MA 01742-9133 (US)**(73) **Assignee: Tellabs Bedford, Inc.**(21) **Appl. No.: 11/894,099**(22) **Filed: Aug. 20, 2007****Publication Classification**(51) **Int. Cl.****G08B 21/00** (2006.01)**G08B 5/00** (2006.01)

An apparatus or corresponding method according to an embodiment of the invention provides optical indications about the state of a circuit on a circuit board. A standard Small Form-Factor Pluggable (SFP) connector component and an optical light transmission element are arranged at different angles relative to an edge of the circuit board, with the connector component being angled other than perpendicular to an edge of the circuit board to increase the density of connector components per circuit board or relieve bending strain on an external cable connected to the connector component. The optical light transmission element may include at least three mounting features to attach the transmission element to the circuit board. The optical light transmission element includes a light propagating region, supporting total internal reflection, and a light-emitting end to output light at a front panel of the circuit board near the associated connector component. A single piece embodiment eliminates a separate clip, thereby increasing ease of manufacture, assembly, and repair while decreasing cost.

